

U.S. BUDGET

Amid the Gloom, Researchers Prepare for a Boom in Funding

Your retirement account may be taking a beating, but if you have a grant application pending at a U.S. science agency, there's an upside to the global financial meltdown: Your chances of being funded have never been better. And if your application isn't already in the pipeline, don't despair. The competition for funds should be eased significantly next year.

This improved research outlook comes partly from the \$787 billion stimulus package signed by President Barack Obama last month. It provides an additional \$22.5 billion across several research agencies, including \$10.4 billion for the National Institutes of Health (NIH), \$3 billion for the National Science Foundation (NSF), and \$1.6 billion for the Department of Energy's (DOE's) Office of Science. Agency officials are under orders from White House budget czar Peter Orszag to spend the money "quickly and wisely," and they are now working out procedures for getting it spent.

The stimulus money is in addition to agencies' regular budgets, which were expected to be finalized this week as part of a \$410 billion spending bill covering the rest of the 2009 fiscal year. The version passed 25 February by the House of Representatives contains a 20% boost for DOE's Office of Science, a major supporter of basic research across the physical

sciences, and a 6.5% increase for NSF. NIH would receive a \$937 million bump. (The Senate was due to act after *Science* went to press.)

And that's not all. On 26 February, Obama delivered a 2010 budget request to Congress that would start to make good on his campaign promise to double the federal investment in basic research over the next 10 years. If Con-

gress goes along, the \$3.6 trillion proposal would boost NIH spending on cancer research by 21% during the fiscal year that begins on 1 October, raise NSF's budget by another 8.5%, to \$7.04 billion, and give "similarly large increases"

for DOE science and for research at the National Institute of Standards and Technology (NIST). A detailed breakdown for each agency won't be available until April.

That trifecta of spending will mean tremendous opportunities for the U.S. research community. It puts NSF, DOE science, and NIST back on the doubling track that President George W. Bush proposed in 2006 and that is enshrined in a 2007 law filled with good intentions but no cash. "I'm very pleased that Congress and the White House have provided us with an unprecedented level of resources for this year," gushed NSF Director Arden Bement at a briefing last week for the National Science Board, NSF's

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Podcast interview
with author
Jeffrey Mervis.

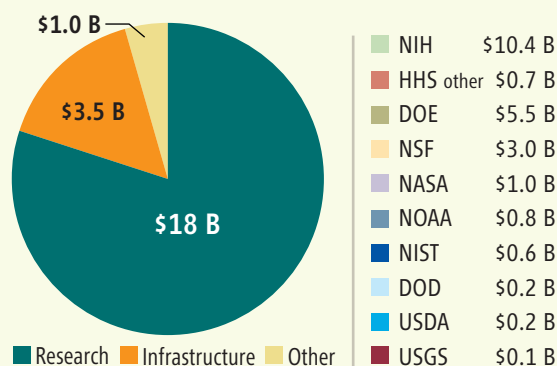


Opening words.
Peter Orszag
presents the
president's 2010
budget framework.

oversight body. Adding the stimulus package to NSF's regular appropriation, Bement explained, gives NSF a total budget of \$9.5 billion in FY 2009. That's nearly 60% more than it received in 2008. And Obama's first budget request, Bement adds, "contains a very good number for NSF."

It's also welcome news for biomedical researchers, who have felt the squeeze from an NIH budget that has remained essentially flat since 2004 after a 5-year doubling. "We are very happy that we are getting out of the doldrums," says cell biologist Richard Marchase, president of the Federation of American Societies for Experimental Biology. Marchase expects that many high-scoring grant proposals sidelined in 2008 will now get approved, adding that the 2010 budget framework holds out hope for steady and sustained annual growth of roughly 7%.

The Stimulus Package by Category and Agency



Sharing the wealth. Ten agencies receive research and construction funds from the massive recovery plan.

Shovel-ready science

For research agencies, the immediate challenge is how to spend their unexpected wealth from the stimulus package. The Obama Administration has assured Congress and the public that these funds will go out the door as quickly as possible without lowering standards, and that their impact on the economy—in particular, on the number of jobs created—will be monitored closely. Although each agency is setting out its own guidelines for how to spend the money and what information grantees will need to provide, the rules drawn up by NSF and NIH appear typical.

Both agencies plan to dip into the existing pool of applicants for the bulk of the new



awards. For NIH, that includes proposals that didn't make the merit review cutoff in 2008; for NSF, it means proposals submitted since last fall that seek funding in the current fiscal year. These peer-reviewed projects could be called shovel-ready science. To avoid commitments beyond 2010, most NSF awards will be in the form of standard grants, in which the full 3-year total is funded up front.

NIH will give top priority to its bread-and-butter R01 grants, but most other categories are also eligible for stimulus money. Unlike at NSF, NIH is also preparing a solicitation for 2-year challenge grants, using up to \$200 million from an \$800 million pot given to the NIH director. The agency hopes to fund challenge grants in 14 areas, with an application deadline of 27 April.

Agency officials promise that speed won't compromise the quality of the reviews. NSF's Division of Mathematical Sciences, for example, is in the midst of running some 50 panels that are sifting through roughly 2500 proposals submitted last fall. "Our instructions to the panels haven't changed," says division director Peter Marsh. "We're still looking for the best science." But Marsh, whose 2008 budget was \$212 million, expects that the additional funds (which haven't yet been allocated among NSF's six research directorates) will result in a healthy rise over last year's 31% success rate.

That could be good news for mathematician Andrew Belmonte of Pennsylvania State University, University Park. Belmonte is awaiting word on a grant proposal he submitted in November to NSF's applied math program after taking an unsuccessful shot the previous year. His work on the transformation of materials during fluid flows is expensive—costing 10 times the normal math project, he estimates—because it requires a well-equipped wet lab. And if funded, he'll need to

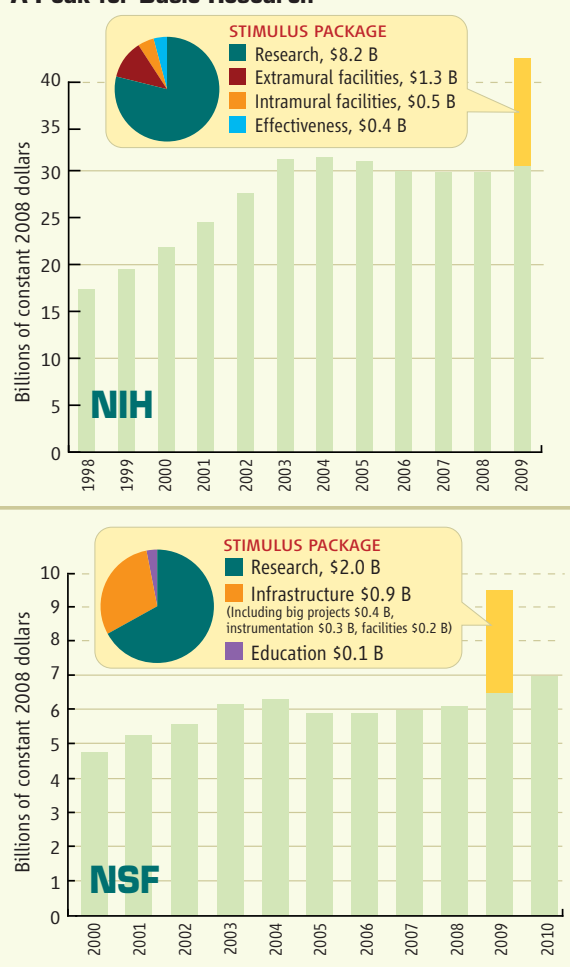
hire a postdoc and several undergraduates, a priority for the stimulus package. Belmonte says he's ready for any additional paperwork: "It's the government's money, and if they want more reporting, I'm happy to do it."

The emphasis on funding what's already in the pipeline obviously favors those lucky enough to have applied in the current funding cycle. But Marsh says that because NSF will be funding so many more grants this year, there should be fewer applications competing for funds next year. At the same time, the recipients of this year's spending spree are likely to show up 3 years hence in the competition for renewals. "So the stimulus will have both a ripple and an echo effect," he says.

—JEFFREY MERVIS

With reporting by Eliot Marshall.

A Peak for Basic Research



A big payday. The stimulus money provides a major boost to recent sluggish budgets at NIH (top) and NSF (above).

Budgets in Brief

Some highlights from the stimulus package, the 2009 budget before Congress, and President Barack Obama's 2010 request:

■ **ENERGY:** DOE's Office of Science gets \$4.77 billion in 2009, up 19%. The ITER project in France gets \$124 million, \$90 million less than requested. DOE's national labs and other facilities divide the \$1.6 billion stimulus money, and the department gets \$400 million to create the Advanced Research Projects Agency–Energy. No 2010 research numbers are available.

■ **NSF:** The \$394 million boost for 2009, to \$6.49 billion, is on top of \$3 billion in stimulus money for research, infrastructure, and education. The agency's six research directorates would grow to \$5.18 billion, and education to \$845 million. The \$11 million Robert Noyce Scholarship program for prospective teachers gets its second straight \$40 million bump, and a program to help researchers in states that struggle to win NSF grants would grow by \$20 million, to \$133 million.

■ **NIH:** The agency's 3.2% increase this year, to \$30.3 billion, is supplemented by \$10.4 billion from the stimulus package. The 2010 budget mentions only "over \$6 billion within the National Institutes of Health to support cancer research." The National Cancer Institute's budget this year is \$5 billion.

■ **NASA:** The space agency will receive \$17.8 billion in 2009, \$380 million more than in 2008. A \$200 million drop in the agency's science programs, to \$4.5 billion, is remedied in its \$1 billion stimulus package. The \$18.7 billion request for 2010 bolsters earth sciences and robotic probes to visit other planets. The new launcher to send humans to the moon wins funding, but the White House may review the target of a 2020 lunar landing.

■ **NIST:** A \$63 million jump in 2009, to \$819 million, maintains the \$65 million Technology Innovation Program. Obama would raise that to \$70 million in 2010. The stimulus funds add \$220 million to a \$470 million research budget, \$180 million to a \$172 million lab-construction program, and provide \$180 million for a facilities grants competition.

—NEWS STAFF